

THE TIMES OFFICE IN 1811, FROM A WATERCOLOUR BY G. SHEPHERD

In the collection of Mr. John Walter

PRINTING IN THE TWENTIETH CENTURY

A SURVEY

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from THE SPECIAL NUMBER *of*

The Times

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PREFACE

Seventeen years have passed since *The Times* marked the publication of its 40,000th number by issuing a collection of articles on printing. Changes not to be overlooked have taken place in these seventeen years; but the changes in printing and in its uses are less obvious than they might be because they are of the nature of development and of advance along a course already marked. There has been no need in these seventeen years for anything so revolutionary as the aims and achievement of the Kelmscott Press. From the impulse given by Morris and carried forward by Sir Emery Walker and others, the improvement in printing has gone forward so fast and so far that all which was mistaken or otiose in the reform has been safely cast aside. Not Morris's types, it is now agreed, but Morris's interest in typography; not Morris's books, but Morris's care for fine, true workmanship in the making of books are his true services to the art and craft of printing. In these seventeen years, or at any rate in the dozen of them which alone can count in the history of printing, the most remarkable change of all is undoubtedly the diffusion of the ideals and the practice of Morris into all but the remotest corners of the printing industry. In place of the artistic—and usually archaistic—amateur printer, we have the professional. He is no dilettante. He calls himself a printer. He knows the business of printing, and all the facilities and difficulties created by the trade unions and their conditions of labour, as intimately as he knows the technicalities of his craft. For all that, he is no less an artist in book making than were the masters of the great private or special presses. In the totality of their scope and function such men are the worthy successors of those whose mighty figures Mr. A. W. Pollard draws out of the past for our instruction and example. And their principal effect upon printing has been this: that, whereas even seventeen years ago beauty of design and fineness of workmanship were looked for only in expensive books,

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to-day ugliness and sloppiness are resented by an ever-increasing number of readers in the cheapest books, and even in newspapers.

Much of the success of these modern printers has come of their readiness to ally themselves with all that science can offer them in mechanical means. In his article on newspaper types, Mr. Stanley Morison remarks that the type of the Printing Number of *The Times* of October 29, 1929, reprinted in this volume, is that of its predecessor of seventeen years ago. *The Times* "went modern," he tells us, before the eighteenth century was out, and, in typography as well as in all other departments of printing, Printing House-square has always been in the van. Not from this office, therefore, is there likely to arise any support for the notion that beautiful printing and mechanical printing are incompatible. And in general, even in the production of books which are intended to make a claim to beauty, modern opinion bends towards the belief that the mechanical devices entirely necessary to newspaper work are aids to the finest artistic book making. The reader who glances through the sections of this book dealing with these devices will find there words and names which appeared, indeed, in the Printing Number of seventeen years ago. But many of these devices have travelled very far in the interval. And amid all the diversity and ingenuity which the labour of keen intellects and the incessant desire for improvement have already produced (only to promise something more wonderful yet before long), one reflection seems to remain just. These inventions can be made the friends, not the enemies, of the artist and the maker of beauty. Reference to the daily picture page in *The Times* might be almost sufficient proof of this idea; but the temptation is irresistible to appeal to the colour pages in the Printing Number, in which, for the first time in England, the powers of "natural" colour photography and of colour reproductions of works of art were exhibited in plates from which many hundreds of thousands of impressions had been taken. In illustration and ornament and in the making of a book as a single piece of beauty the new devices give the artist advantages for expression denied to him before. Even in the printing of letterpress they may be destined to reach undreamed-of power. At least one article in this volume suggests a future for printing in which typesetting, even by machine, shall play no part. The modern spirit in printing will brace itself to meet and to absorb even this almost incredible revolution, and turn it to the service of good work in book and in newspaper.

It is, of course, the newspaper which stands to win the first advantage out of any improvement in the mechanics of printing type or picture.

PREFACE

For newspapers, as for the processes which make them, these seventeen years have been years of rapid development. The old problem was how to get the news and some comment on it or explanation of it quickly enough to the ever-increasing multitude of readers whom the newspapers themselves (following the example first set by *The Times*) had taught to demand immediate information as a right. That old problem persists, and has been the spur to many an improvement; but to-day it is complicated by the new problem of coping with the enormous increase in the number and diversity of the subjects in which the still increasing public is interested. To its primary function of a means of record and dissemination of political news and knowledge the newspaper is asked now to add that of guidance and instruction in a hundred other fields. There is no limit to the questions on which it may be suddenly asked for information and counsel. Experts on every conceivable form of knowledge must be available to it. Functions that used to be left to the weekly or the monthly periodicals must now be performed by the daily paper. Decisions which a Government office or an intellectual society might ponder for days or weeks must be taken in minutes. The eye of the lynx and the suspicion of the fox must be kept alert for errors in the most unlikely places. The untrue and the less true must be sorted from the true, the insignificant and the less significant from the significant, at lightning speed. The most tempting news must be withheld if its publication should be likely to distort the public apprehension of the essential truth; and the most alluring scheme rebuffed if it should threaten wider interests. Under this constant strain of finding and clinging to the truest truth and the wisest wisdom, at the risk of condemnation for partiality, for dullness, for malice, for prejudice, for a score of other offences readily charged against the Press, those who are responsible for making six days a week such a newspaper as the public has been taught to expect naturally feel well disposed to any achievement of science which will save time in production and increase beauty and variety of presentation. Ever since the first John Walter took the King's Printing-house in 1784 the English newspaper has been a capital influence in the advancement of English printing; and English printing, in its turn, has helped to make the English newspaper what at its best it has the honour and the pride to be.

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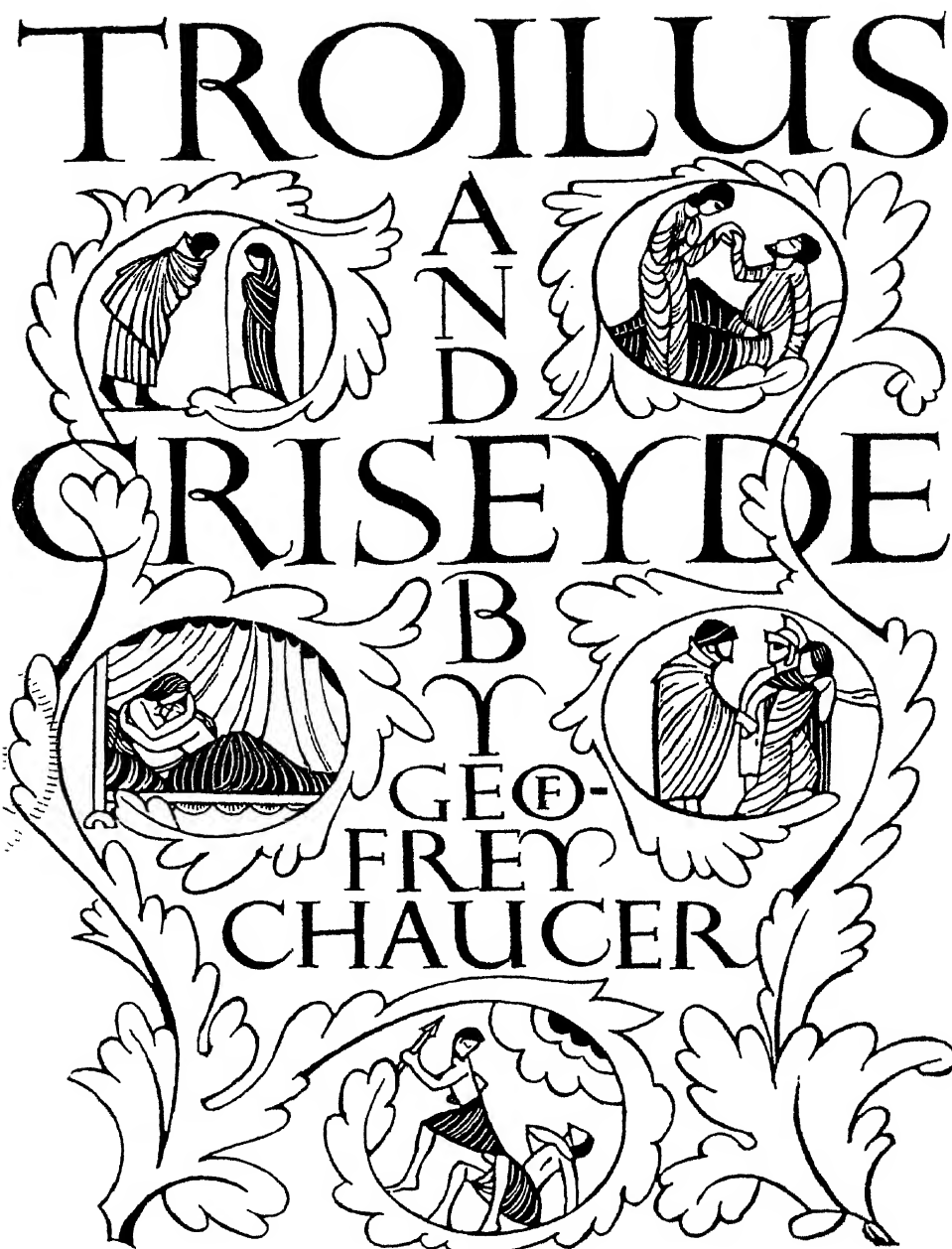
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The title-page of "Troilus and Criseyde," engraved by Mr. Eric Gill for the edition printed and published by the Golden Cockerel Press.

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PART I

THE HISTORY OF PRINTING

CHAPTER I

FROM GUTENBERG TO OUR OWN TIMES

According to Ulrich Zel, the first printer at Cologne, the "most worthy art" of printing was invented "first of all in Germany at Mainz on the Rhine in the year of Our Lord 1440." Zel's date has been adopted for previous centenaries, and doubtless the fifth will be celebrated in 1940 and to the accompaniment of the usual outburst of dissertations. There is, indeed, still room to argue as to the Latin grammars (Donatuses) printed, according to Zel, in some fashion in Holland before work began at Mainz; as to what went on at Strasburg, where Gutenberg stayed for some years between 1440 and 1450; and as to the parts played at Mainz by Gutenberg, the recognized "inventor," by the goldsmith Fust, who lent him money and sold him up, and by Peter Schœffer, Gutenberg's workman, who went over to Fust and was given his daughter in marriage as a reward for his inventions. At present controversy, though not quite dead, is unusually pacific.

It is recognized that, instead of printing having sprung into existence in full perfection, many years of humble output had preceded the neat small types of the Mainz Indulgences of 1454 and 1455, the majestic Bible completed before August, 1456, and the splendour of the red-and-blue capitals and printing in red in the signed work of Fust and Schœffer during the next decade. On the other hand, the decline from these glories was accompanied by practical improvements during the next fifteen years, such as the ability to print more than one page at a time, the numeration of quires and leaves, and the introduction of title-pages, all of which played their part in making printing a success.

The art soon began to spread. We may trace Gutenberg's influence in its early appearance at Strasburg, where a great Bible was completed in

or before 1460. Another great Bible, in a variant of Gutenberg's experimental type and probably of his printing, seems to have been published at Bamberg, where similar type was used by Albrecht Pfister for a few thin illustrated books; also in or before the year of Gutenberg's death (1468) one of his workmen, Berthold Ruppel, started a press at Basel. At Mainz the triumphant career of Fust and Schœffer was temporarily checked by the sack of the city in a struggle between two rival archbishops, for one of whom they had printed broadsides in a beautifully clear, small type. But in 1466 Ulrich Zel, one of their workmen, began his long and prolific career at Cologne, and soon all the more important riverside cities in Germany were provided with presses, busy printing books of every kind for which there was a demand, both in Latin and in German. A useful incentive to maintain a high standard was supplied about 1480, when, after Milan and Rome had led the way in printing missals (previously, we may presume, regarded as too sacred to be produced by a new-fangled mechanical art), German bishops commissioned printers to produce handsome editions sanctioned for use in their province or diocese.

Most of these missals are printed in pointed church types akin in the canon to those used by Fust and Schœffer in their famous Psalters of 1457 and 1459, and in the rest of the service to those of the early "Gutenberg" Bibles. But two notable printers, Georg Reyser at Wurzburg and Erhard Ratdolt at Augsburg, used the rounder church type with which they had become acquainted in Italy and achieved (more especially Reyser) very beautiful results with it; a few other printers, chiefly at Nuremberg and Basel, worked on similar lines. Pointed letters, tall but narrow, made up of straight strokes ending in an apex, had been a device of ecclesiastical scribes to combine ceremonial dignity with economy in parchment, and when used commercially in small sizes the desire to save space becomes too evident. Hence when points were dropped and curves were given the form of curves instead of a series of joints, the printed page became more pleasing. The process was carried farther when the rounded gothic types took on more of the antique or roman letters of the ninth century out of which they had themselves been developed. These modified types used, at any rate occasionally, to be called semi-gothic or semi-roman, according as the one style or the other predominated, but in the newest nomenclature are classed together as *gotico-antiqua* or *fere-humanistica*. By whatever name they are called, some of the German ones are very beautiful, notably that used by Ulrich Zel in the "Summa" of Bartholomæus Pisanus of 1483.

This must certainly be called semi-gothic. An equally fine semi-roman is the magnificent type used by Lienhart Holle in printing the "Cosmographia" of Ptolemy at Ulm in 1482, which Mr. St. John Hornby has taken as the model on which is based the type of his magnificent "Don Quixote." Distinctively roman or "antiqua" types never thrived in Germany, or in the first century of printing anywhere save first in Italy and then in France.

Besides her fine "mixed" types, Germany's special contribution to the diversity of founts were the two cursive vernacular types known respectively as "Schwabacher" (a word of unknown origin), which began to be used at Nuremberg in 1485, and the "Fraktur," which is adumbrated in the type used at Augsburg for the Emperor Maximilian's "Gebetbuch" (1514) and "Teuerdank" (1517), and assumed its characteristic form at Nuremberg and Wittenberg a few years later.

Altogether the contribution of Germany to the craft of printing in the fifteenth and early sixteenth centuries was a very notable one. Whatever obscure experiments may have been made in Holland before 1440, Gutenberg, Fust, and Schœffer were all Germans, and as a practical craft it was an all-German invention. The glory of the Fust and Schœffer books on their own lines is supreme, and the plainer books by which they were followed during the next twenty years, when the rubricator, as was intended, has brightened them with capitals, headlines, and paragraph marks in blue and red, are still delightfully gay. A few printers had good woodcut capitals, and the cuts in the German illustrated books, though less charming than those of Italy and France, have more dramatic power and characterization. The known output of Germany in the fifteenth century may be estimated at some 10,000 different editions, about a third of the total produced in Europe. Moreover, she had taught the rest of Europe to print, and, if production at the present day is more influenced by traditions derived from Italy and France, where finer manuscripts were available for imitation, it was from Germany that Italy and France received the craft.

The earliest of the German pioneers were Sweynheym and Pannartz, who in 1465, probably at the invitation of its abbot, Cardinal Turrecremata, set up a press at the Benedictine monastery at Subiaco, some miles from Rome, and printed there for two years with a "gotico-antiqua" type which Mr. St. John Hornby has used, with very slight modifications, in a long series of beautiful books from his Ashendene Press. In 1467 they moved to Rome, where, with a less successful but more purely "antiqua" type, they printed more books than they could

PRINTING IN THE TWENTIETH CENTURY

sell, and came to grief. When they had reached Rome, Ulrich Han, probably a fellow-workman under Fust and Schœffer at Mainz, was already printing the "Meditationes" of their former patron, Cardinal Turrecremata, completing them on December 31, 1467. His "antiqua" types are undistinguished, but his large rounded gothic is very imposing.



This illustration from a book printed by Jodocus Badius, Paris, 1522, shows an early wooden hand-press. It will be noticed that the upper part was fixed to the ceiling.

In 1469 John of Speier (the next town of importance up the Rhine from Mainz) obtained from the Senate at Venice a special privilege giving him the monopoly of printing in its dominions for five years. He died, however, probably before the year was out, while printing his fourth book, and though he was succeeded by his brother Wendelin the privi-

lege lapsed, and an opening was thus made for a much greater man, Nicolas Jenson.

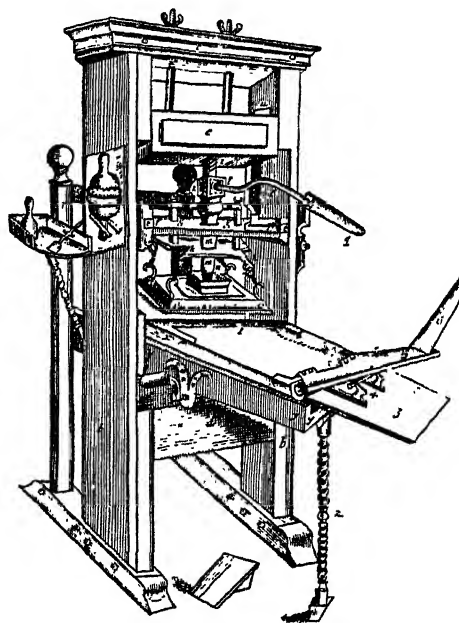
A native of Sommevoire on the Upper Marne, Nicolas Jenson is said to have been Master of the King's Mint at Tours, and according to a story, not satisfactorily authenticated, to have gone to Mainz in 1458 to study the new craft, presumably under Fust and Schœffer.

From 1474 he found it profitable to cut gothic types for more compressed printing in cheaper books, but he used a single "antiqua" fount throughout his career of a little over a decade, and this by common consent has never been surpassed. In his own books its merits are frequently obscured by thin ink and faulty presswork, but it has always been admired, and since its reproduction under the direction of Sir Emery Walker for the Doves Press books it has been made the basis of beautiful types in Germany, Holland, and the United States, and its influence on other founts has been great. Many other Italian "antiqua" types have charm, some very pretty ones being produced by unknown or little known printers away from the great centres, but none of them can stand the test of comparison with this master fount with which Jenson himself was content to the end of his life. The later Venetian types for the most part suffer from compression, but one used by Maker and Ratdolt in 1476 is very graceful, and the type of the "*Hypnerotomachia Poliphili*" printed by Aldus in 1499 has been not only admired but reproduced, though Robert Proctor, whose genius introduced order and comparative certainty into the enumeration and identification of fifteenth-century types, cordially disliked it.

Proctor's dislike for the types introduced by Aldus arose from the mischief done by his Greek founts, in which, as Mr. Scholderer remarks in his "*Greek Printing Types*," he "accepted unmodified the crowding and restless involutions of the vulgar script of the day and reproduced them in the rigidly fixed lines of a metal block." The earlier Greek printing in Italy had begun with excellent types in which the Greek quotations in Latin manuscripts had been adapted to range with the Latin by which it was surrounded. The two quotation types of Sweynheym and Pannartz at Rome are both good, that of Jenson at Venice still better. A later Venetian quotation type used in a "*Macrobius*" of 1492, probably printed by Joannes Rubeus, recently adapted by Mr. Scholderer, has rightly won general acceptance and is used in Greek quotations in *The Times*. The types used in the few books wholly or mainly in Greek produced before Aldus got to work had been based on Greek scripts of varying quality, and though they had met with little

success and had failed badly as to accents and breathings, they had not imposed on Greek scholarship the mass of contractions by which Aldus burdened it for nearly three centuries.

With the help of many Germans and not a few French workmen, printing thrived in Italy even more than in Germany. Before 1501 it had



A wooden hand-press as used in 1683.
From an illustration in Joseph Moxon's
"Mechanick Exercises," &c.

been practised in over fifty different places, and two-fifths of the known European output in the fifteenth century must be ascribed to their presses. Venice was by far the largest printing centre, and not only in editions of the Latin and Greek classics, but in missals and breviaries and annotated law books, it competed successfully with all rivals.

After Germany and Italy the next place must be assigned to France. Here German printers were invited to set up a press at Paris in the Sorbonne in 1470, and the books issued there were printed in a handsome though rather restless variety of the type which henceforth we may

call "roman," since now we are out of Italy the popular name for the style which the learned call "antiqua" is free from confusion. But the bulk of French printing in the fifteenth century follows vernacular gothic scripts, and some of these, especially when accompanied by contemporary woodcuts, are pleasant both to read and to look at. For vernacular books Lyons almost rivalled Paris, and good work was done elsewhere in the provinces. But it was not till well into the sixteenth century that the primacy of printing passed to France. Spanish printers (here again many of them German) produced some massively splendid early books and maintained this style farther into the next century than any other country.

The Low Countries produced a considerable output of not very important books. But while our own first printer, William Caxton, learnt his craft at Cologne in helping to print the "*De Proprietatibus Rerum*" of Bartholomæus Anglicus about 1472, it was at Bruges that he began to print about 1475 and with Low Country type that he started in England.

Caxton rented his house in the Almonry at Westminster from Michaelmas, 1476, and produced the recently discovered Indulgence before the middle of December. He printed just over a hundred books and documents in eight different types, neither he nor his competitors using any roman fount. His competitors were at Oxford a German from Cologne; two foreigners (one of them from Mechlin) in the City of London; and a schoolmaster printer, who must have been an Englishman, at St. Albans. When he died he was succeeded by his foreman, a Lorrainer, Wynkyn de Worde, who had as competitors William of Mechlin's successor, Richard Pynson, from Normandy, and Julian Notary, probably another Frenchman. De Worde seems to have got his later types from Paris, while Pynson patronized Rouen. Caxton printed good literature in an unpretentious and rather old-fashioned way. Pynson was quite a good printer. But there is nothing to be learnt from any of the printers in England in the fifteenth century or for some scores of years after.

Modern printing begins with the Vergil printed by Aldus in 1501 with the italics or cursive letters designed for him by Francesco Griffi. The long series of books in this form were handy and cheap, and italic was clearer to read than any equally compressed roman founts, while the use of gothic letters was already diminishing. So italic for the greater part of the sixteenth century was much used as a text type, usually for vernacular books, in both Italy and France, and was sporadically used

in the same way in England and elsewhere. Then roman regained its supremacy and italics became a supplementary type. The custom of using them for quotations has resulted in their being cut to match roman founts of all sizes, and they are no longer fined down to occupy a minimum of space.

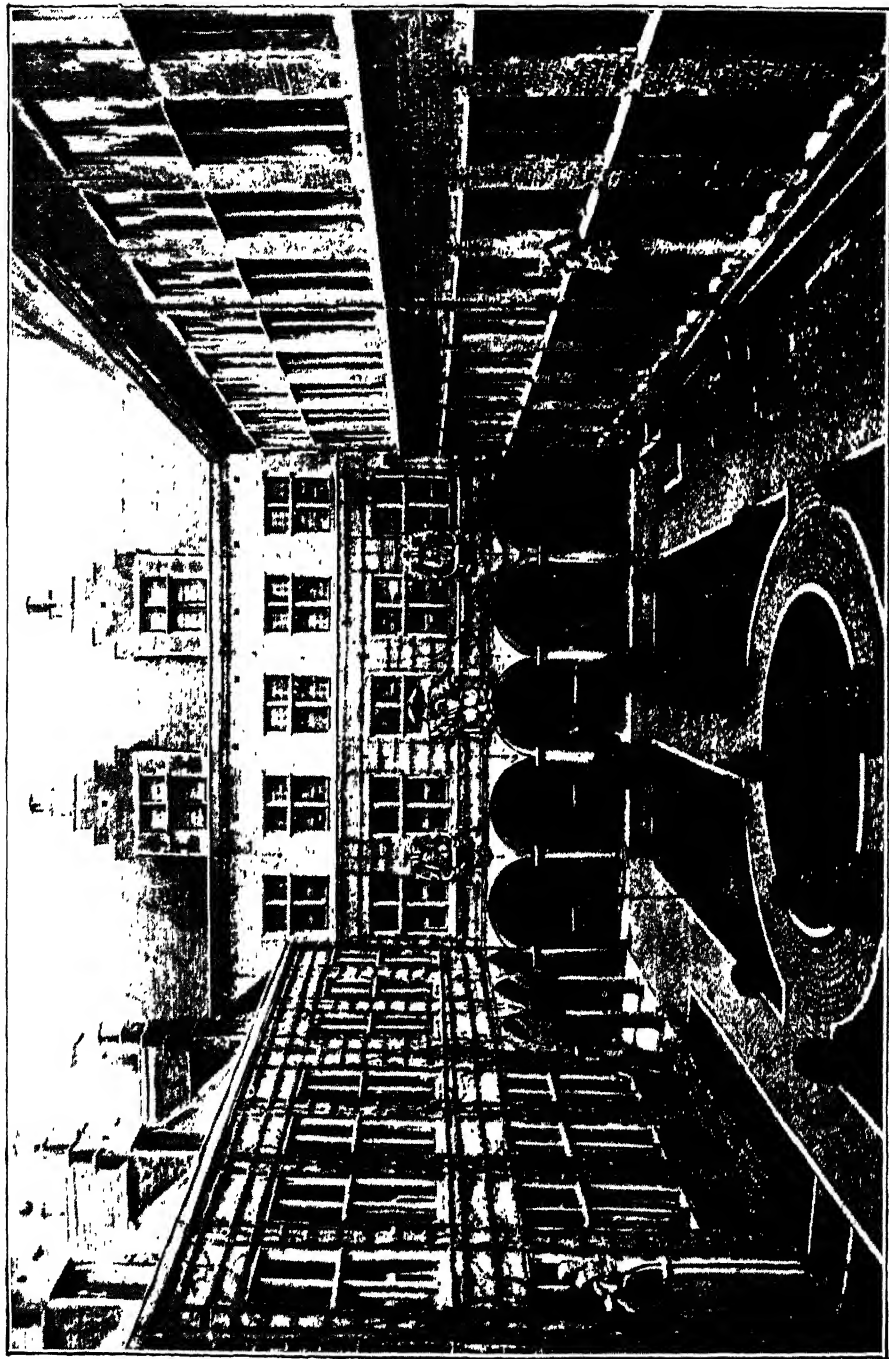
Italics were the last substantial gift of Italy to the craft of printing. The house of Aldus held its own for the best part of the century, and that of Giunta at Florence and the Gioliti at Venice produced good books. But by 1520 the Italian primacy in printing was waning, and though it is customary to say that it passed in the first instance to Basel, this is really to argue that because Froben secured for himself the printing of the works of Erasmus, and he and other Basel printers obtained border-pieces and other ornaments from Urs Graf and Hans and Ambrosius Holbein, Basel printing was superior to French.

It seems better to regard France as Italy's direct successor, more especially as Geoffroy Tory had made two visits to Italy before he aroused interest in the forms of letters by his *Champ fleury* and brought a new influence into French book illustration and decoration by his Books of Hours. Tory himself, however, is of more importance as a decorator and writer than as a printer, and it was Simon Colines and his ward, Robert Estienne, and the typecutter Claude Garamond, who caused Paris to capture the lead from Venice, though it has been claimed that the influences both of Jenson and of the type of the Aldine "*Hypnerotomachia*" can be traced in founts with which Garamond is credited. The Royal Greek types, which, though they contained too many contractions, are so beautiful that they deserved their long-continued popularity, were cut by Garamond from the designs of Angelus Vergetius for Robert Estienne, and first used in 1550. From about 1540 to 1570 fine work was being produced not only at Paris but at Lyons, where Jean de Tournes and other printers, with types cut by Garamond and Robert Granjon, produced many fine books, notably some charming little ones with illustrations by Bernard Salomon.

Soon after 1570 wars of religion greatly hampered the French book trade, and the primacy, here again of publishing and elaborate book decoration rather than of printing, is said to have passed from France to Antwerp, where Christopher Plantin produced his famous "*Polyglott*" and was lavish in illustrations and ornaments and large types. But though he was certainly an enterprising book-builder, Plantin's taste was far from impeccable, and it is doubtful whether Paris was ever really dethroned.



The printing room in the Musée Plantin-Moretus, Antwerp. The room, arranged as it was in 1576, contains two of Plantin's original presses.



The courtyard of the Musée Plantin-Moretus, Antwerp, the home of the famous sixteenth-century printer, Christopher Plantin, and his son Moretus.

In the second half of the sixteenth century, while printing on the Continent deteriorated, in England it improved, and in John Day we have an English printer who, with the support of Archbishop Parker, set himself to obtain good types, especially a fine fount of italics, and pictorial initials and other ornaments, mostly from abroad, and used them with some skill. Several later printers—Denham, Bynneman, Vautrollier, and Field—did good work, and towards the end of the century a few fine folios, such as Ponsonby's collected editions of Sidney's works (1598), and charming pocket volumes of verse, such as Constable's "Diana" and Griffin's "Fidessa," may inspire English book-lovers with satisfaction. Very little is known of English type-founding at this period, and it seems probable that some of the types used in English books were now, as certainly later on, procured from Holland. After the sack of Antwerp in 1576, Plantin for a time retired to Leiden, and it was at Leiden that his son-in-law, Franciscus Raphelengius, printed many fairly pretty pocket editions. At Leiden also the first of the Elzevirs started a printing house in 1583, which lasted well into the eighteenth century, and for about thirty years from 1624 was famous for its pocket editions of the Greek Testament, of Latin and Italian classics, and French memoirs. Later in the century it was from Holland that Bishop Fell procured the types he gave to Oxford, and Dutch improvements in the mechanism of printing were also adopted by English printers. What was wrong all over Europe about this time was that publishers had accepted a showy engraved title-page or frontispiece as a sufficient attraction to sell a book, and paid less attention to good type and presswork.

Early in the eighteenth century William Caslon emancipated English printers from dependence on Holland for their types, and a little later the brothers Robert and Andrew Foulis did good work at Glasgow. In 1757 an English printer, John Baskerville, for the first time gave a lead which was followed in France, Italy, and Germany, the type and presswork of his "Virgil" of that year and of his "Milton" of 1758 winning immediate success. Baskerville had been a writing master and made a fortune in japanning, and he tried to make his books look finer than those printed with Caslon's types by using a blacker ink and giving a gloss to the paper by pressing each sheet as it was printed between hot plates. His great merit was that he relied on his types and his presswork to make fine books, instead of on ornaments, and thus revived the dignity of the craft.

Baskerville's types influenced the work of Alexander Wilson, who cut

Bristol, and even of the Caslons. After his death his best fount was sold to France; in Germany G. J. Goeschen was strongly influenced by him, and at Parma Giambattista Bodoni worked with extraordinary brilliancy on similar lines, but with a conscious determination to make his books magnificent which diverts attention from the text and reached its climax in a huge folio edition of the "Imitatio Christi." In England the delicacy of Bewick's wood engravings caused types to be designed which would harmonize with them, and a cloud of fat-faced types descended upon English printing, and after these had passed little noteworthy work was done until, in 1830, Charles Whittingham, who had been at work as a printer since 1789, became associated with William Pickering, a publisher of excellent taste, who persuaded him to procure copies of many of the fine capitals and border-pieces of the chief sixteenth-century French printers. More important still, Whittingham, in 1844, led the way in restoring the older Caslon founts to popularity, and though the charm of the best English books from 1830 to 1850 awaits a chronicler, good work was done. After the Great Exhibition of 1851 much of it disappeared in blatancy and, on the other hand, right up to 1890 many books, well laid out, were spoilt by the greyness of pages lightly printed with cheap ink. The books printed at the Chiswick Press, as the firm of the Charles Whittinghams came to be called from a brief sojourn at Chiswick, under the management of Mr. Charles Jacobi, stood out from this greyness, and so did many of those of Messrs. Constable, printers to the University of Edinburgh, especially when Walter Blaikie took a personal interest in them.

But though in 1889 William Morris accepted the Chiswick Press edition of his story "The Roots of the Mountains" as the best printed book produced in England for many years, he was not content, and in 1890 began printing the Kelmscott books, which in some eight years gave printing a new start all over the world, just as Baskerville (in a style to which Morris's was strongly opposed) had done in 1757. The Kelmscott books did this, first, by being supremely good in their own rather heavy style, and even more than this by demonstrating that there was a public willing and eager to pay high prices for specially well printed books. Attempts to imitate Morris's founts uniformly failed. Working in his spirit, but taking Jenson's splendid roman type for his model, Sir Emery Walker procured from Mr. Prince, a great type-cutter, a fount which for the first time brought out the full beauty of the Jenson letter. Across the water the *éclat* of Morris's books induced the Riverside Press, of Cambridge, Mass., to form a special department of

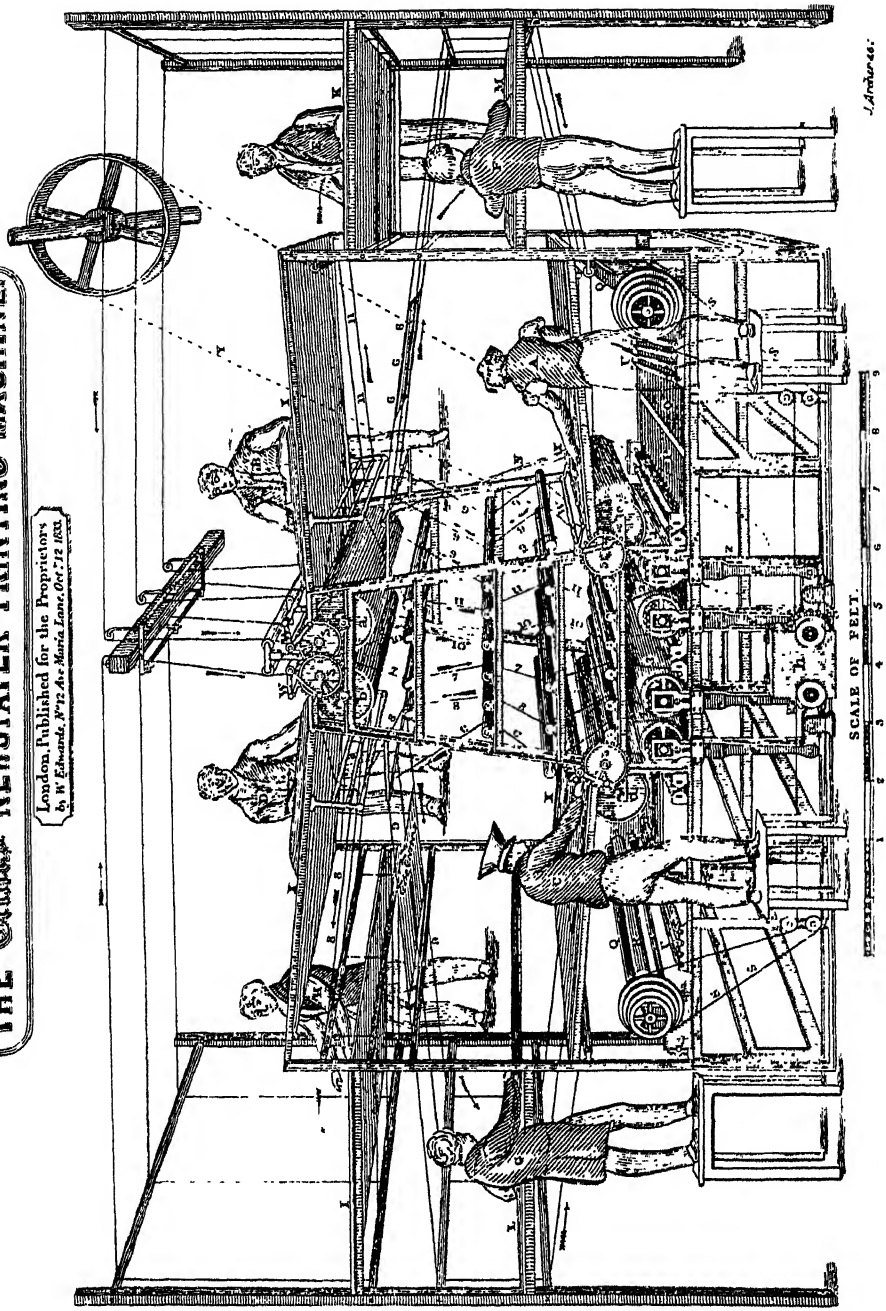
their big business for finely printed books in limited editions, and in that special department Mr. Bruce Rogers made wonderful experiments in printing books in the typographical style of the period to which they belonged, producing also many other fine books and a few almost unequalled in their beauty. Then in 1918 Mr. Bruce Rogers came to England, and for a year or two acted as typographical adviser to the Cambridge University Press, previously best known for its accuracy, but which now suddenly leapt into prominence for admirable taste and perfect presswork. For some time also English printers had begun to realize that a machine called a "Monotype" quickened composition, saved the cost of distribution, and made every piece of type new as from the mint as the compositor called it into existence.

This new interest in fine printing and the wealth of good material on which it can draw are not confined to England and the United States. In the 1929 exhibition in the King's Library at the British Museum, illustrating British and foreign printing of the years 1919-29, fine books were shown from a dozen other countries. It is no exaggeration to say that never since the decade 1470 to 1480 has so much fine new work been brought into existence and so much interest been taken in its production.

A. W. P.

THE TIMES^{ED} NEWSPAPER PRINTING MACHINE.

London, Published for the Proprietors
by W. Edwards, No 72 Ave Maria Lane, Oct 7 1827.



J. Applegath & Co.

The printing press invented and constructed by Applegath and Cowper, *The Times* engineers, in 1827.

CHAPTER II

“THE TIMES” AND PRINTING
REMARKABLE ACHIEVEMENTS

From the year 1784 until the present day all the chief improvements in the printing of newspapers have been either invented or first tried and fostered in what is now the office of *The Times*. Yet the man who started this unexampled story of progress happened upon printing almost by accident. When other means of livelihood had failed, John Walter be-thought him of a certain printing process in which he had become inter-ested a few years before. The process was that known as logography, and it consisted of printing with logotypes, which are combinations of letters. It had been invented by a compositor named Henry Johnson, who had first devised it not for letters, but for figures. He wanted to publish every evening a list numerically arranged of blanks and prizes drawn daily in the State lottery, and this could not be done in time by the ordinary methods of composing. Johnson therefore made types of from two to five figures, each of which could be set up as quickly as a type of a single figure. The method was successful; and Johnson was adapting it also to the printing of words, when John Walter bought his patents and after a time started his own type foundry and turned printer on his own account. Early in 1784 he took “the King’s late printing-house near Apothecaries’ Hall,” which stood on part of the site now occupied by *The Times* Office. The premises had been vacant for about fourteen years when John Walter took them and started logographic printing in earnest. By strenuous work he reduced the 90,000 words in the English language to about 5,000, “by separating the particles and termina-tions, also removing the technical terms and obsolete expressions.” These 5,000 he still further reduced by disintegrating the words into syllables, roots, prefixes and terminations, and thus produced a fount which was capable of being arranged in four compositors’ cases, each measuring $6\frac{1}{2}$ feet by $4\frac{1}{2}$ feet.

The object was to take from the case a combination of as many letters

as possible at each movement, and yet not to have so many combinations to select from that the compositor would take a long time in finding the one he wanted. Each combination was made of separate letters cemented together. All the letters of the fount were first cast singly with a slightly shorter shank than an ordinary fount, and with the lower part of the shank narrower than the upper. The required logotype was then set up in the usual fashion, and the word or part of a word thus composed was inserted face downwards in a mould fashioned to the shape of ordinary type. Melted type metal was then poured in so as to fill the mould and bind all the separate letters together. Released from the mould, the logotype was then ready for its place in the case, and, being shaped like ordinary types, could be used by the compositor in conjunction either with other logotypes or with single letters. Obviously this ought to make composing a much quicker job than with single letters only. John Walter maintained that it did, and he was probably right. But his logography never received a fair chance. The printers and booksellers resented the invasion of one who was no printer, but who printed very well; and they put every obstacle in his way. He appealed to the King, to the public, to the trade; and everywhere he found opposition and neglect. Still he believed in his logography, and was resolved to prove its worth. To nothing could quick printing be so valuable as to a newspaper. John Walter started a newspaper, *The Daily Universal Register*; "Printed Logographically," as it proudly stated; and its first number was published on January 1, 1785. The droll part of the story is that very quietly logographic printing was dropped out of use in his printing-house. On January 1, 1788, the 940th number of his newspaper appeared with the new title "*The Times or Daily Universal Register, Printed Logographically.*" On the following March 18 the alternative title disappeared. "Printed Logographically" survived for some time afterwards, and in 1789 he printed a pamphlet with logotypes; but it is doubtful whether logographic printing was used to any great extent in the paper. Walter had fixed the price at 2½d., instead of the usual 3d., in order to prove the cheapness of this method of composing; but his printers demanded to be paid as if each combination were taken from the case in separate letters. When the title of the paper was changed, the price was raised to 3d.; and it may have been about that time that logographic printing, though still used by Walter for other work, was discontinued in the newspaper. And when, in the 1850's, an attempt was made to revive the use of logotypes, *The Times* was foremost in pouring scorn on the idea.

The desire for the quickest possible publication of news and the widest possible dissemination of the paper led to the improvements in printing which *The Times* has effected. The first improvement to be made was the greatest and most striking of all. On November 29, 1814, when the first John Walter had been dead two years, and his son, the second John Walter, had been for eleven years in sole charge of the paper, *The Times* published an article which stated:—

“Our journal of this day presents to the public the practical result of the greatest improvement connected with printing since the discovery of the art itself. The reader of this paragraph now holds in his hand one of the many thousand impressions of *The Times* newspaper, which were taken off last night by a mechanical apparatus. . . .

“Of the person who made this discovery, we have but little to add. . . . It must suffice to say . . . that he is a Saxon by birth, that his name is Koenig, and that the invention has been executed under the direction of his friend and countryman, Bauer.”

It is possible that Koenig owed something to a cylinder press patented by William Nicholson in 1790. The secret was the use of a cylinder to take the impression from the flat bed of type, which was carried under the cylinder and under the inking roller by steam power. The Koenig press was the first steam press; and it could print from 1,000 to 1,100 impressions an hour of the little four-page sheet (20in. by 32in.) which *The Times* then was; and that, pitifully small though it seemed, was more than four times as many as could be printed till then by hand. The great revolution was begun, and like most revolutions once begun, it went ahead quickly. Improvements were constantly being effected in *The Times* Office to the Koenig press by two ingenious inventors whom John Walter had put in charge of his printing and engineering departments after Koenig's return to Germany; and in 1827 these men, Applegath and Cowper, produced a new press which could print from 4,000 to 5,000 copies an hour. The machine required eight attendants, four to lay the sheets of paper on and four to take them off when printed.

Twenty-one years later, in 1848, Augustus Applegath made history by producing his first rotary machine, which could print 10,000 copies of the four-page *The Times* in an hour. In this machine, for the first time, the types were not laid flat, but attached to a cylinder. The cylinder was $5\frac{1}{2}$ feet in diameter, and stood vertically. It was not, in fact, a true cylinder, but a number of planes each of the width of a column of the paper. This cylinder was surrounded by eight impression cylinders, at each of which sheets were fed to the machine. Two of these

eight-cylinder machines were in use at *The Times* from 1848 to 1868. Another Applegath machine, with nine cylinders, was in use till 1857, when it was removed to make room for the first Hoe machine. The Hoe was an American development of the rotary. The cylinder in this machine was a true circle and was placed horizontally, the types being attached to it in cast-iron beds, one for each page; and the machine also had a device for laying the printed sheets in piles on tables. A ten-cylinder, or rather ten-feeder, machine, such as was made in England to order of *The Times*, would produce 20,000 sheets an hour, printed upon one side at a time.

On October 1, 1861, the tax was taken off paper, and the last obstacle to quick printing was removed. Experiments had been going on for some time in France and England in the making of stereotypes, and in printing from a roll of paper by means of cylindrical stereoplates. In 1862 the manager of *The Times*, J. C. MacDonald, and the chief engineer, J. Calverley, began to experiment on these lines. In 1866 they patented what afterwards became the famous Walter Press. The Applegath and Hoe presses had printed direct from the types fixed on the cylinders, and were fed with separate sheets of paper, each of which could be printed only on one side at a time.

In the Walter Press there were two cylinders carrying stereoplates each cast from a page of type, and two impression cylinders covered with blanket. The paper, unwound from a continuous roll several miles in length on a spindle, was passed over a tension roller, then over damping cylinders which wetted it on both sides, and so to the printing appliances. Passing between the upper printing and impression cylinders, it was printed on one side; then it passed between the other pair and was printed on the other side. Next the cutting cylinders cut it up into completely printed newspapers, which were delivered from the machine not folded. Mechanism for folding, which had been first used in Liverpool, was added to the Walter Press in 1885. The Walter Press remained in use in *The Times* until 1895, and for at least ten years after that one of these presses, though no longer in use, was still to be seen in the office. The successor to the Walter Press was the Hoe three-roll press. Newspapers were increasing much in the number of their pages, and the increase had been contrived either by installing more single-roll machines or making combinations of several machines in one. The Hoe three-roll press, with two reels of paper at one end and one at the other, made any such combination unnecessary. In 1908 the first Goss and the first Hoe presses came to Printing House-square: octuple